

## Mussel Reef Restoration in full swing

The last quarter has seen a flurry of activity for mussel restoration in the Marlborough Sounds.

In mid-December the team carried out a deployment at new restoration site Penguin Bay, in Pelorus Sound. With the help of Sanford's mussel team, 2 tonnes of mussels and 4 tonnes of shell were deployed. As well as providing another site for restoration, the team is trialling the use of shell material at different heights to understand if relief from the seabed helps to provide better environmental conditions for adult and juvenile mussels.

Altan Ní Mhurchú and Luke Johnston joined the team in December as PhD students, and both have hit the ground running with experiments already in the water.



*The University of Auckland, Top of The South, mussel restoration team with the Sanford crew for December 2023's deployment in Penguin Bay.*

Altan is investigating ecosystem benefits of utilising recycled mussel shell from industry for restoration purposes. Her first experiment involves using fish sampling devices called "SMURFs" (standard monitoring units for the recruitment of fish) to quantify larval and juvenile fish on the restored shell and mussel habitats.

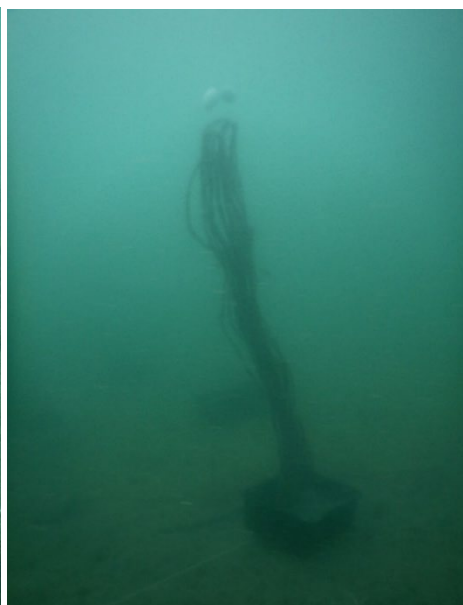
Early results have been exciting with a variety of fish species found to be present already including triplefin fish, spotties, leather jackets and a couple of sea horses!



*Left: Emilee Benjamin and Altan Ní Mhurchú with a SMURF, ready for deployment*

*Right: Some of the juvenile fish found in SMURFs one month after deployment.*

Luke is focussing on how to improve recruitment of juvenile mussels into restored reefs. He currently has two experiments underway. The first is investigating spat settlement gradients in the water column at subtidal restoration sites. His second experiment is looking at settlement substrate use as a potential method to facilitate spat into the restored mussel beds. Small trays are being used as simple, defined sampling units with coir as a settlement substrate. Trays will be collected at various time points to quantify recruitment and evaluate the usefulness of this facilitation technique.



*Trays simulating restored reefs with suspended coir to investigate substrate use in facilitation of spat recruitment.*

Over the next few months we will continue to collect data and look to expand mussel restoration in Wakapuaka (Delaware Bay) and Mohua (Golden Bay).

As always, mussel restoration is a community effort. Thanks to Sanford for their generous help with the Penguin Bay deployment and for providing the mussels and shell, SPATnz for providing coir, the Brownlee family for their patience with our work in Penguin Bay, Mike and Lynley at Hopewell Lodge for their help with the tray deployment and outstanding hospitality, and the numerous supports from all our partners.

Please feel free to get in touch with any questions or if you'd like to get involved:

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*A recently deployed shell and mussel plot in Penguin Bay*

